WHAT IS CLAIMED IS:

1. A method to monitor and analyze the performance of a petroleum processing unit comprising:

(a) Collecting historical data relating to said oil refinery unit from a process history database;

(b) Performing a workup to determine the output measurements;

(c) Storing the results of said workup in said process history database.

2. The method of claim 1 further comprising the step of validating said historical data.

3. The method of claim 1 further comprising the step of correcting said data.

4. The method of claim 1 wherein said historical data includes stored data or calculated data from said process history database.

5. The method of claim 1 wherein said historical data comprising process data, including temperatures, pressures, flow rates and catalyst loadings, start and stop dates of the last workup.

6. The method of claim further comprising the step of putting the results of said workup into a process model for said petroleum processing unit to compute the performance of the unit.

7. The method of claim 1 wherein said performing step is carried out by using calculation programs.

8. The method of claim 6 wherein said method compares workup results to a process model results to compare actual, predicted, and optimal operation.

9. The method of claim 1 wherein a Global attribute Mapping Reference Table which contains the definition and master control information to identify how every variable is collected, transposed, moved through the modules and stored.

10. The method of claim 9 further comprising the step of configuring the method for different petroleum processing units.

11. The method of claim 1 wherein said method includes the determination of a special balance window to define the appropriate starting and ending time window to be used for the workup and the process model for each execution of the method.

12. The method of claim 11 further comprising the step of comparing laboratory and analytic data to the process data.

13. The method of claim 1 thru 12 wherein the results of said work up stored in said process history database may be accessed by other methods used in said petroleum processing unit.

14. The method of claim 11 wherein said balance window can be defined by an analysis of unit operations to identify a period of time of operation of the process at steady state.

15. The method of claim 1 wherein said workup calculation modules are made up of reusable workup sub-modules that can be shared by the calculation module of many different process units.

16. The method of claim 2 wherein said data validation step includes filtering, damping, averaging, statistical, principle component analysis or process runs rules as a way to automatically set the bounds for validation.

17. The method of claim 6 wherein said model can be executed more than once at different conditions or different model modes in which to determine an optimum operating point.

18. The method of claim 6 further comprising the step of using the data in said process history database for assessment of the accuracy of the model and more exact tuning of the model.

19. The method of claim 1 wherein said petroleum processing unit is a distillation unit and said workup is performed by using equations that relate to a distillation unit, including blending of feeds of different crude types, calculations of flash zone performance, hydraulic performance of tower sections, and hydrotreating.

20. The method of claim 1 wherein said petroleum processing unit is a hydrotreating unit and said workup is performed by using equations that relate to a hydrotreating unit, including catalyst performance and activation, hydrogen purity and others.

21. The method claim 1 wherein said petroleum processing unit is a cat cracking unit and said workup is performed by using equations that relate to a cat cracking unit, including bed fluidization, catalyst circulation, catalyst additions, cracking estimations, emissions and regeneration and others.

22. The method of claim 1 wherein said petroleum processing unit is a lubes unit and said workup is performed by using equations that relate to a lubes unit, including extract and raffinate efficiency, composition impacts

of qualities such as wax, additive use, and performance limits that impact qualities and others.

23. The method of claim 1 wherein said petroleum processing unit is a reforming unit and said workup is performed by using equations that relate to a reforming unit, including catalyst performance, recycle gas quantity and quality, regeneration effectiveness, and others.

24. The method of claim 1 wherein said performing step is carried out by including equations in the data workup that relate to the petroleum processing unit.